

A CROSS-CULTURAL INVESTIGATION OF MINORITY AND NON-WHITE MAJORITY  
CHILDREN'S IMPLICIT ATTITUDES TOWARD RACIAL OUTGROUPS

MEGHAN GEORGE

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## ABSTRACT

In this research I aimed to increase our understanding of the early emergence of racial biases by examining the implicit racial attitudes of minority and non-White majority children in two cultures. In Study 1, minority children in Canada completed an Implicit Association Test to measure implicit racial attitudes. Young non-Black minority children held a pro-White (versus Black) implicit bias. However, unlike previous findings, the magnitude of bias was *lower* for older children. In Study 2, I examined the implicit attitudes of Malay (majority) and Chinese (minority) children and adults in Brunei with limited contact with White or Black peers. Children showed implicit pro-White and pro-Chinese (versus Black) biases by early childhood, but showed no pro-White (versus Chinese) bias. Together, these findings support theorizing about the development of implicit intergroup cognition (Dunham et al., 2008), but suggest that context can shape these biases to a greater extent than was previously thought.

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## A cross-cultural investigation of minority and non-White majority children's implicit attitudes toward racial outgroups

When asked about their racial attitudes, North Americans generally report non-prejudiced, egalitarian views (Pearson, Dovidio, & Gaertner, 2009), suggesting that perhaps racial prejudice is a thing of the past. However, research examining automatic, uncontrolled race-based evaluations, known as *implicit attitudes*, suggests that, at least on an implicit level, biases persist (Dovidio, Kawakami, Smoak, & Gaertner, 2009). For example, non-Black adults who report an equivalent preference for members of White as compared to Black racial groups, typically show a pro-White bias on measures of implicit attitudes (Greenwald, McGhee, & Schwartz, 1998). Comparable biases have been found for a variety of target groups (e.g., Axt, Ebersole, & Nosek, 2014; Dunham, Baron, & Banaji, 2006), suggesting that prejudice remains a current and pressing issue.

Psychologists interested in when and how these implicit attitudes develop have demonstrated that biases emerge quite early in life. For example, children's implicit preferences for their racial ingroup and for high status racial groups seem to be present from as early as six years of age, often at levels equal in magnitude to the biases found in adults (Baron & Banaji, 2006; Dunham, Baron, & Banaji, 2008; Dunham et al., 2006; Rutland, Cameron, Milne, & McGeorge, 2005). The existing literature on the topic, however, has largely focused on the attitudes of White majority children and attitudes toward a racial outgroup relative to an ingroup. In order to gain a better understanding of the development of implicit attitudes, and therefore the development of racial bias in an increasingly diverse world, it is important to study the attitudes of a diverse sample of children. The goal of the present thesis was to further our understanding of the emergence of implicit racial biases by (a) examining the implicit racial biases of understudied minority and non-White majority children, and (b) focusing primarily on the

development of racial biases toward racial *outgroups* that differ in proximity and status.<sup>1</sup>

Specifically, across two studies, I examined the implicit racial attitudes of minority and non-White majority children in distinct cultural contexts that differ in their proximity and direct exposure to White (advantaged) and Black (disadvantaged) outgroup members.

### **White Majority Children's Implicit Racial Attitudes**

Initial studies examining implicit racial biases in childhood focused primarily on the biases of White majority children (Baron & Banaji, 2006; Dunham et al., 2006; Rutland et al., 2005) and made use of a popular measure of implicit attitudes known as the Implicit Association Test (IAT; Greenwald et al., 1998). The IAT is a computer-based reaction time task that requires participants to pair racially prototypical faces (e.g., White or Black) with positive or negative attributes. Being faster to pair White with positive attributes and Black with negative attributes, as opposed to the reverse pairing (i.e., White with negative and Black with positive) is taken as evidence that a pro-White (versus Black) bias has been automatized.

Studies have consistently demonstrated that White majority children show a relative implicit preference for their White ingroup relative to minority outgroups (Dunham et al., 2008) from at least early childhood. For example, Baron and Banaji (2006) had 6-year-olds, 10-year-olds, and adults complete a White-Black IAT and found that all three age groups showed an implicit pro-White bias. Interestingly, this bias was similar in magnitude for each age group, suggesting that bias is present in children as young as six at adult-like levels. The authors also measured explicit racial attitudes, and found that the trajectory of explicit bias does not mirror that of implicit bias (for a review, see Raabe & Beelmann, 2011). That is, explicitly, the

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<sup>1</sup> Throughout this thesis I will use the terms “status” (e.g., higher and lower status) and “advantage” (e.g., advantaged and disadvantaged) interchangeably to refer to local and global group-based differences in wealth and social power between racial groups. Although the term “status” is often used in the literature, I lean toward the use of “advantage” as the term “status” might suggest that these differences have been earned and/or deserved.

youngest participants demonstrated high levels of bias, 10-year-olds showed moderate levels, and adults showed no explicit preference for people who are White relative to Black. These findings are noteworthy, as they suggest a different developmental path for implicit and explicit attitudes; explicit bias is expressed less often in later development, but implicit biases remain relatively stable.

Using a comparable child-friendly version of the IAT (ch-IAT), Rutland et al. (2005) found results similar to those of Baron and Banaji (2006) in England, with White British children between 6 and 16 years of age showing similar levels of implicit pro-White bias (see also Degner & Wentura, 2010; Dunham et al., 2006; Newheiser & Olson, 2012), despite showing a decrease in explicit prejudice with age. These findings suggest that White majority children implicitly favour their high status racial ingroup from early in development and have more positive associations with their ingroup relative to specific racial outgroups (Dunham et al., 2008). One limitation to this research is that these implicit pro-White attitudes could reflect an *ingroup* positivity, a preference for *high status* (versus lower status) racial groups, or both. Research examining the biases of racial minority children has helped to further our understanding of how the status of different racial groups can inform implicit racial attitudes.

### **Non-White Children's Implicit Racial Attitudes: The Role of Status**

Unlike findings with White children, when minority children's implicit attitudes toward their racial ingroup and the White majority are compared, they typically do not show a preference for either group. This lack of implicit ingroup bias has been found among both Black (Newheiser & Olson, 2012) and Hispanic (Dunham, Baron, & Banaji, 2007) children in the United States; both groups failed to show any implicit bias when their racial ingroup was compared to the White majority. By contrast, when minority children's implicit attitudes toward

their ingroup are instead compared to another disadvantaged minority group, minority children generally show an implicit preference for their ingroup, suggesting that ingroup bias may be moderated by the relative status of the comparison racial group. For example, Dunham et al. (2007) found that Hispanic children, who are arguably an intermediate status group, were biased in favour of their ingroup when the comparison group was Black (a disadvantaged outgroup), but as was just noted, Hispanic children showed no bias when the comparison group was White (a high status group). Current theorizing suggests that these results emerge because children are aware of social status associated with racial groups, and that they can simultaneously have positive associations with both their ingroup and a high status outgroup (Dunham et al., 2008).

Further evidence that children incorporate status knowledge into their implicit attitudes can be found in Newheiser and Olson's (2012) study of Black and White 7- to 11-year-olds. In addition to having participants complete a standard White-Black IAT, children also completed an IAT measuring associations between race (White and Black) and status (operationalized as rich versus poor), and explicit measures examining attitudes toward status more generally. White children showed an implicit association between their racial ingroup and wealth, whereas Black children did not. However, when the authors examined the interaction between attitudes and race, they found that Black children who demonstrated an explicit pro-rich relative to poor bias also demonstrated an implicit pro-White bias, whereas those who did not show an explicit pro-rich bias lacked an implicit bias. By contrast, an explicit preference for rich did not significantly predict implicit racial bias for White children. Thus, at least for Black children, explicit status preferences are related to their implicit racial attitudes.

More recently, cross-cultural studies have provided additional evidence that status can inform children's implicit racial biases. Newheiser and colleagues (2014) examined the attitudes



of children in South Africa, a nation where racial groups have differed greatly in their relative status due to a history of apartheid, to show that children's implicit racial attitudes are sensitive to status differences between groups. In their study, Coloured (an intermediate status racial group comprised of mixed race individuals) and Black children between the ages of 6 and 11 years completed IATs comparing either White and Coloured or White and Black targets. Consistent with the possibility that children integrate status information into their implicit racial biases, both Black and Coloured children showed an implicit preference for White when compared to Black. In addition, Coloured children showed a preference for White over Coloured, but Black children showed no bias for this comparison. Dunham and colleagues (2014) similarly examined Black and Coloured South African children's implicit attitudes toward Coloured versus Black faces. Both groups demonstrated a preference for the Coloured group, which further supports the theory that status greatly informs implicit attitudes in the South African culture.

One noteworthy aspect of the research from South Africa is that the children in this study lived in an environment where the status disparities among racial groups were very apparent throughout society (Newheiser, Dunham, Merrill, Hoosain, & Olson, 2014). By contrast, a cross-cultural study conducted by Dunham et al. (2006) investigated the implicit attitudes of children who had limited or no contact with outgroups, and had little exposure to the cultural norms associated with White Americans. The authors had Japanese children and adults from a remote village in Japan complete IATs comparing attitudes toward their ingroup (Japanese), and either a globally high status (White) or low status (Black) outgroup. Due to the fact that their participants lived in an environment with little direct contact and exposure to outgroup members, the authors hypothesized that these children would show an ingroup bias in early development,

but that they would begin to incorporate status information into their implicit attitudes by middle childhood. Consistent with this expectation, participants displayed a pro-Japanese bias regardless of the comparison group. However, older children and adults showed less implicit pro-Japanese bias when the comparison with their Japanese ingroup was the high status (White) outgroup as opposed to the lower status (Black) outgroup. The authors also measured participants' explicit attitudes and found an ingroup bias in early childhood regardless of whether the comparison group was White or Black, however, consistent with the explicit attitudes of North Americans, this bias was not found in adults. This study demonstrates that a preference for the ingroup and for high status groups may develop independently, with ingroup preference emerging early and status information informing implicit racial bias to a greater degree in later childhood, when children have acquired the cognitive ability to incorporate such information into their attitude formations (Aboud & Skerry, 1984). Another possibility, however, is that status information is also acquired early, but that ingroup preference overshadows the status bias when there is limited direct contact with the outgroup. One way to test this possibility is to compare attitudes toward outgroups directly.

### **The Present Research**

The goal of this research is to build on these initial findings examining the early development of implicit racial attitudes. Despite the mounting evidence that children develop positive associations toward both ingroup members and high status groups, there are still several aspects of this area of research that remain unclear. First, research to date has focused almost exclusively on children's attitudes toward outgroups *relative to* ingroups (cf. Newheiser et al., 2014). Although several studies have aimed to show that children develop implicit status preferences, they have come to such a conclusion by comparing children's implicit attitudes

toward their ingroup with various outgroups. In order to examine whether implicit biases favouring high status versus low status groups emerge in early childhood, it is important to control for this ingroup confound. In the current research I focused primarily on outgroup attitudes by examining minority children's implicit racial attitudes toward high and low status racial outgroups. In addition, as very little research has examined the effect of direct access to minority group members in shaping implicit racial attitudes, in the present research I examined whether proximity to outgroup members might attenuate biases across stages of development.

Specifically, across two studies I examined children's implicit racial biases toward the racial outgroups of "White" and "Black" among non-Black minority and non-White majority group members (Studies 1 and 2), as well as among Black minority children (Study 1). In addition, in Study 2, I included additional implicit measures to examine the biases of Malay majority and Chinese minority children and adults in Brunei toward a local minority group (Chinese) relative to Black and White outgroups. In Study 2 I also examined explicit racial preferences and children's explicit knowledge of status differences among racial groups.

My supervisor, Jennifer Steele, and her collaborators collected the data for both of these studies previously, but the data had not been fully analyzed or published. Study 1 was conducted in the large urban city of Toronto, Canada and includes South Asian, East Asian, Southeast Asian, and Black children. Study 2 was conducted in the urban city of Bandar Seri Begawan, in the small Southeast Asian country of Brunei Darussalam and includes Malay majority and Chinese minority children and adults. Both of these samples differ dramatically in their direct exposure to the targeted outgroups. Children in Toronto were recruited from schools with a large Black population within their school and local community, within the larger cultural context of Canada where the majority is White. By contrast, children from Bandar Seri Begawan had

limited opportunities for contact with members of either White or Black outgroups in their immediate environment, as well as within the larger Southeast Asian cultural context of Brunei. However, participants in this sample did have the opportunity to interact with members of the Malay majority and Chinese minority groups.

For my thesis, I examined whether children's implicit attitudes reflect a preference for relatively advantaged groups from an early age, regardless of the extent to which they have direct exposure to members of these groups in their immediate communities. Consistent with previous findings with minority children, I expected that the implicit racial bias of minority children would be impacted by the relative advantage experienced by racial outgroups in a global context from early childhood. Specifically, my **first hypothesis** was that non-Black minority (Studies 1 and 2) and non-White majority (Study 2) children would show a pro-White relative to Black bias on measures of implicit attitudes by early childhood (e.g., 6 years of age).

As well, given that some research has shown that levels of implicit bias can differ across age groups (Dunham et al., 2006), and that implicit attitudes are related to the degree of contact with outgroups in adolescents (Turner, Hewstone, & Voci, 2007) and adults (Page-Gould, Mendoza-Denton, & Tropp, 2008), I expected that implicit attitudes would be context dependent and that both age-related and cultural difference might therefore be seen in our samples. Research suggests that children's minority status influences explicit outgroup attitudes by late-childhood (Pfeifer et al., 2007), and cross-race friendships have been shown to be associated with less explicit bias (Aboud, Mendelson, & Purdy, 2003). For this reason, I examined the possibility that implicit bias toward the disadvantaged racial minority group might differ across age groups as a function of the opportunities that children, as a group, have for contact with members of the minority outgroup. In line with this possibility, my **second hypothesis** was that

older children who, in their immediate context, had the opportunity to interact with minority peers from the target group would show attenuated implicit pro-White bias.

In Study 2, I also examined children's explicit knowledge of status differences as well as their explicit attitudes. My **third hypothesis** was that children in Brunei would explicitly identify racial groups higher and lower in social status by early childhood, and that they would express an explicit preference for higher status group members. That is, I predicted that they would demonstrate knowledge of the higher status of White (global) and Chinese (local) racial groups relative to the globally disadvantaged Black racial outgroup, as well as a preference for White and Chinese relative to Black. Unlike the findings of the study conducted by Dunham and colleagues (2006) in Japan, I predicted an explicit pro-White bias in early childhood due to the fact that (a) ingroup bias is not a confounding variable in the Brunei sample and (b) the participants were from an urban (as opposed to rural) community, and therefore might have more access to Western influences. In addition, I anticipated less explicit bias in adults, as social norms within a large urban area are likely to discourage explicit racial prejudice.

If supported, these hypotheses would provide additional evidence that children's implicit attitudes are informed by knowledge of and preference for high status groups in early childhood. This would also provide information about the biases of different minority groups in North America, and cross-culturally among Malay and Chinese children in the Southeast Asian country of Brunei, and how they might be shaped by the immediate social context.

### **Study 1**

In Study 1 I tested my first hypothesis that non-Black minority children would show an automatic positivity toward children from relatively advantaged (White) as opposed to disadvantaged (Black) outgroups. In addition, I tested the hypothesis that younger (from senior

kindergarten to grade 2,  $M_{age} = 7$  years,  $SD = 7$  months) non-Black minority children from a racially diverse North American community with a large Black population would show more bias relative to older (from grades 3 through 5,  $M_{age} = 9$  years,  $SD = 9$  months) children. While much of the literature on implicit attitudes in children points to the stability of bias across the lifespan, Dunham et al.'s (2006) findings with a cross-cultural sample of Japanese children hints at the possibility that access to information about members of different racial groups might impact implicit racial biases, particularly in late childhood. In addition, evidence that the implicit attitudes of adolescents (Turner et al., 2007) and adults (Page-Gould et al., 2008) are related to cross-group friendships may be an indication that the biases of children in such a diverse environment can also be lower among older children who have had more opportunities for direct contact with historically lower status outgroup members. Building on these findings, although I expected that pro-White bias would be evident in children regardless of age, unlike previous research, I expected that older minority children, as a group, would display less pro-White bias relative to younger children, due to the fact that they would have had prolonged exposure to Black minority group members in their immediate community.

An additional goal of Study 1 was to examine the biases of Black children living in Toronto. Previous research suggests that Black children explicitly express either a pro-White preference, an ingroup preference, or no bias (for review, see Aboud & Skerry, 1984). More recently, researchers have found that Black children show either no implicit preference (Newheiser & Olson, 2012) or an implicit pro-White preference (Newheiser et al., 2014) when their racial ingroup is compared to the White outgroup. I examined whether similar findings would emerge in the multicultural setting of Toronto where Black children may have more opportunities to develop positive associations with their racial ingroup due to the large number of

Blacks within the community. This cultural environment is unique in that, relative to the United States and South Africa, Canada lacks a significant history of Black slavery (Hartz, 1969), our government strongly supported the anti-apartheid movement in South Africa (Government of Canada, 2014), and the country explicitly values racial diversity (Government of Canada, 2012).

### **Design**

Study 1 had a 2 (Age of participant: younger or older) x 4 (Race of participant: Black, South Asian, East Asian, or Southeast Asian) between subjects design, with implicit racial attitudes (*D*-score) as measured by a child-friendly White-Black IAT as the dependent measure. The decision to group participants into younger and older age groups is in line with the social-cognitive developmental theory of prejudice (Aboud, 2008). This theory proposes that children develop attitudes at a young age and that at approximately 7 years of age, children undergo a critical cognitive transition where they become more capable of processing and incorporating additional social information into their attitudes, and so this critical transitional age provided a reasonable cut-off for grouping. As well, we had access to child participants from various grades and grouping children from all grades into younger and older subsets allowed us to increase statistical power. Age was therefore divided into younger (kindergarten to grade 2) and older (grade 3 to grade 5) children.

### **Method and Procedure**

#### **Participants**

A power analysis using G\*Power based on 8 groups,  $\alpha = .05$ , a medium effect size  $f = .25$ , and 80% power, led to  $N = 179$  (Faul, Erdfelder, Lang, & Buchner, 2007). Consistent with this analysis, a total of 181 Black, South Asian, East Asian, and Southeast Asian participants were recruited and completed a child-friendly White-Black race IAT (ch-IAT; Baron & Banaji,

2006; Greenwald, Nosek, & Banaji, 2003) as part of a larger study. Data from 19 children were removed prior to our analyses because they did not follow instructions and either pressed random buttons ( $n = 3$ ), were highly inattentive ( $n = 3$ ), had difficulty understanding the experiment due to a lack of English fluency ( $n = 8$ ), responded to at least 10% of trials faster than 300 ms ( $n = 2$ ; Greenwald et al., 2003), had an error rate greater than 35% ( $n = 1$ ; Cvencek, Meltzoff, & Greenwald, 2011), or had an average reaction time on all trials that fell three standard deviations above the mean ( $n = 2$ ; Cvencek, Greenwald, & Meltzoff, 2011; Cvencek, Meltzoff, & Greenwald, 2011).<sup>2</sup> After these participants were removed from the sample, the resulting power based on a medium effect size  $f = .25$  was 75%.

The final sample included a total of 162 Black ( $n = 52$  (35 girls);  $M_{age} = 7$  years, 8 months,  $SD = 12.95$  months), South Asian ( $n = 56$  (30 girls);  $M_{age} = 8$  years, 2 months,  $SD = 15.10$  months), East Asian ( $n = 27$  (15 girls);  $M_{age} = 8$  years, 1 month,  $SD = 17.57$  months), and Southeast Asian ( $n = 27$  (15 girls);  $M_{age} = 7$  years, 8 months,  $SD = 17.75$  months) children who completed a measure of implicit racial bias as part of a larger study. Younger children ( $n = 91$ ) were recruited primarily from grade 1 ( $n = 59$ ) as well as senior kindergarten ( $n = 7$ ) and grade 2 ( $n = 25$ ) and included 33 Black, 27 South Asian, 16 East Asian, and 15 Southeast Asian children (55 girls;  $M_{age} = 7$  years, 1 month,  $SD = 7.76$  months). Older children ( $n = 71$ ) were recruited primarily from grade 3 ( $n = 51$ ) as well as grades 4 ( $n = 10$ ), and 5 ( $n = 10$ ) and included 19 Black, 29 South Asian, 11 East Asian, and 12 Southeast Asian children (40 girls;  $M_{age} = 9$  years, 2 months,  $SD = 9.97$  months). Children were recruited from, and tested in, racially diverse schools in the Toronto area after receiving consent from the school board, principals, teachers,

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<sup>2</sup> An additional seven participants, not included in the initial total, started the task, but due to a computer malfunction, their data were corrupted and unusable.



and parents as well as verbal assent from each child. Participants were tested individually by one of two White experimenters. All stimuli used are presented in Appendix A.

## Measures

**Implicit racial attitudes.** Participants completed a ch-IAT (Baron & Banaji, 2006; Greenwald et al., 2003) designed to measure automatic attitudes toward the racial groups White and Black. The structure of our ch-IAT followed the format outlined by Baron and Banaji (2006), consisting of 5 blocks (3 practice and 2 critical). Similar to previous studies, the measure was reduced in length to be child-friendly (Cvencek, Greenwald, & Meltzoff, 2011; Cvencek, Meltzoff, & Greenwald, 2011; Newheiser et al., 2014; Newheiser & Olson, 2012; Rutland et al., 2005). As with the adult IAT, participants sorted faces by race in the first practice block. Children were presented with a header containing cartoon images of a White and Black child and were told, “if you see a picture of a White (Black) child in the middle of the screen, I want you to press the orange (green) button as quickly as possible.” Target faces were real life images of White and Black boys cropped at the nose. In the second practice block, the concepts of pleasant and unpleasant were represented by simple line drawings of shapes, such as squares and triangles, with either smiling (pleasant) or frowning (unpleasant) faces. Children were presented with a header containing one smiling and one frowning cartoon face that was not depicted inside a shape and were asked to sort comparable pictures by pressing the two coloured computer keys (Rutland et al., 2005). Both practice blocks consisted of 16 trials, and once they were both completed, children proceeded to the first of two critical blocks.

Critical blocks consisted of 32 (12 practice and 20 test) trials in which responses to both racial and positively and negatively valenced stimuli were combined by using the same two computer keys. In one of the critical blocks, pictures of Black children and positively valenced

stimuli shared one computer key while White children and negatively valenced stimuli shared the other. Next, participants again practiced sorting racial stimuli, only this time the location of the faces in the header switched. For instance, if the Black face had appeared on the left hand side of the header, it now appeared on the right, with the White face on the opposite side. Finally, the smiling and frowning line drawings were reintroduced with the faces in these new locations within the header, making up the second critical block. The starting position of the faces and smiling and frowning drawings were counterbalanced between participants.

## Results

Responses on the ch-IAT were scored according to Greenwald et al. (2003), with higher *D*-scores indicating a greater automatic positive association with White as compared to Black. *D*-scores were calculated by determining the difference between a participant's mean reaction times on congruent (White paired with pleasant and Black paired with unpleasant) and incongruent (White paired with unpleasant and Black paired with pleasant) critical trials, and dividing this difference by the standard deviation. This procedure was done for practice and test trials separately, and the average of both sets of trials resulted in a final *D*-score for each participant (Greenwald et al., 2003). A *D*-score of 0 indicates no bias, scores significantly higher than 0 represent a pro-White bias and scores significantly lower than 0 represent a pro-Black bias.

## Implicit Racial Attitudes

To examine whether the magnitude of racial bias differed depending on the race or age of the participant, I conducted a 2 (Age of participant: younger or older) x 4 (Race of participant: Black, South Asian, East Asian, or Southeast Asian) between-subjects ANOVA<sup>3</sup> using their IAT

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<sup>3</sup>Each of these analyses was also conducted using gender as a factor. As no main effect for gender or interaction involving gender emerged for any of the analyses, it is not discussed further.

*D*-scores as the dependent variable. A main effect for Age of participant emerged,  $F(1, 154) = 5.43, p = .02, \eta_p^2 = .03$ , as did a main effect for Race of participant,  $F(3, 154) = 5.58, p = .001, \eta_p^2 = .10$ . These main effects were not qualified by a significant interaction,  $F(3, 154) = 1.87, p = .14, \eta_p^2 = .04$ . As a group, older children, ( $D = 0.04, SD = 0.39$ ) showed less implicit pro-White bias than did younger children ( $D = 0.13, SD = 0.41$ ), and only younger children showed a significant pro-White bias,  $t(90) = 2.99, p = .004, d = 0.63, 95\% CI [.04, .22]$ , when their *D*-scores were compared to 0. Older children, as a group, did not show bias that was significantly different from 0,  $t(70) = .95, p = .34, d = 0.23, 95\% CI [-.05, .14]$ . In addition, post hoc Tukey HSD tests revealed that Black children ( $D = -0.07, SD = 0.36$ ) showed less bias than South Asian ( $D = 0.11, SD = 0.39$ ),  $p = .07, d = -.48$ , East Asian ( $D = 0.30, SD = 0.43$ ),  $p < .001, d = -.94$ , and Southeast Asian ( $D = 0.17, SD = 0.37$ ),  $p = .04, d = -.64$ , children. None of the non-Black minority children differed from one another in their level of bias (post hoc Tukey HSD  $ps > .12$ ). As has been found in previous research, Black children's *D*-scores did not differ significantly from 0, indicating that they showed no significant bias ( $D = -0.07, SD = 0.36$ ),  $t(51) = -1.46, p = .15, d = -0.41, 95\% CI [-.17, .03]$ .<sup>4</sup>

## Discussion

Results from Study 1 support my first hypothesis that minority children in a primarily White society with direct exposure to members of the Black minority would show an implicit pro-White (versus Black) preference in early childhood. This finding is consistent with the

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<sup>4</sup> To ensure that the main effect of age was not driven entirely by the Black participants, I also examined non-Black children separately by conducting a 2 (Age of participant: younger or older) x 3 (Race of non-Black participant: South Asian, East Asian, or Southeast Asian) between-subjects ANOVA using their IAT *D*-scores as the dependent variable. Only a main effect of Age of participant emerged  $F(1, 104) = 5.09, p = .03, \eta_p^2 = .05$ . Neither the main effect of Race of participant  $F(2, 104) = 1.66, p = .20, \eta_p^2 = .03$ , nor the interaction  $F(2, 104) = 2.60, p = .08, \eta_p^2 = .05$ , were significant. Older non-Black minority children, ( $D = 0.10, SD = 0.37$ ) showed less implicit pro-White bias than younger non-Black children ( $D = 0.24, SD = 0.42$ ), however, both younger,  $t(59) = 4.40, p < .001, d = 1.15, 95\% CI [.13, .34]$ , and older,  $t(51) = 1.98, p = .05, d = 0.56, 95\% CI [-.001, .20]$  non-Black minority children showed a pro-White bias, see Figure 1.

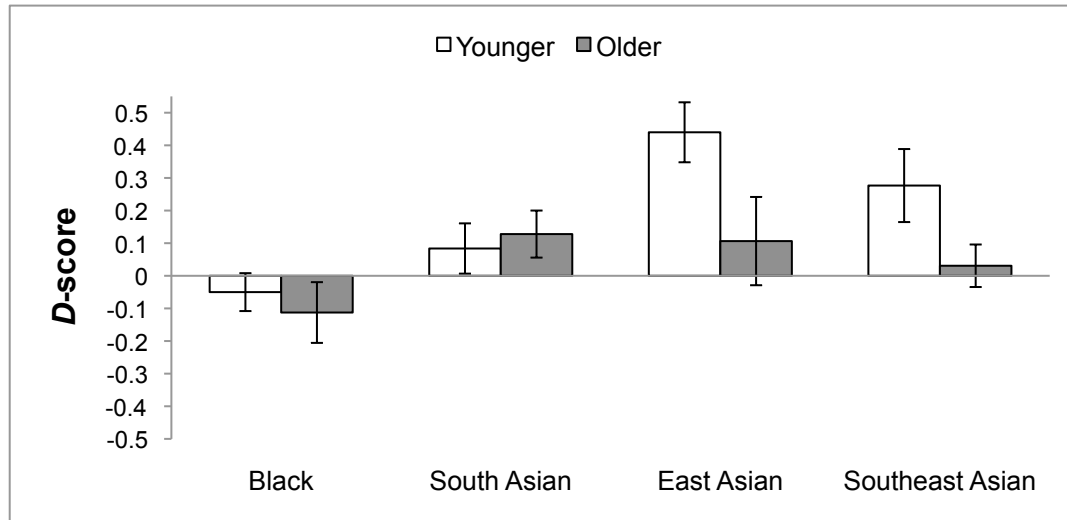


Figure 1. IAT *D*-scores of younger and older participants across racial group. Positive *D*-scores represent an implicit preference for White relative to Black; negative scores indicate an implicit preference for Black relative to White. Error bars represent the standard error.

suggestion that implicit preferences favouring higher (versus lower) status groups emerge early in development (Dunham et al., 2008). The current study further tests this possibility by incorporating a more racially diverse sample and considering attitudes toward two racial outgroups instead of one racial outgroup relative to the ingroup. Based on the findings, it seems that these attitudes are not developed only in relation to a child's racial ingroup, but instead reflect more general associations with different racial outgroups. This contributes to current theorizing by suggesting that children not only have "an early sensitivity to knowledge of the relative social status of one's own group in the local, culturally determined dominance hierarchy" (Dunham et al., 2008, p. 248), but that they acquire implicit preferences that also reflect the relative social status of different racial *outgroups*.

Consistent with my second hypothesis, younger participants in this sample also demonstrated greater implicit pro-White (versus Black) bias than older children. This is the first study to demonstrate greater implicit positivity toward a minority outgroup in late, as compared to early, childhood. One potential explanation for this finding is that older children's implicit

attitudes may have been affected not only by cultural associations with the high status majority group from their greater society, but also with positive associations that they had developed with Black minority group members in their immediate community (Pettigrew & Tropp, 2006).

Consistent with this possibility, the findings are in line with research with adults which found that Hispanic participants with a large number of Black friends showed no bias on a White-Black IAT (Aberson, Porter, & Gaffney, 2008). A related possibility is that in younger childhood, minority children may show implicit preferences for the high status White majority, but as they approach older childhood, the formation of their own identity as minorities may allow them to draw similarities between themselves and the lower status Black outgroup in their immediate community, providing increased opportunities for positive attitudes toward Blacks (and possibly negative associations with Whites) to be acquired. If children begin to identify themselves more broadly as a minority group which includes Black, based on their knowledge of social status hierarchies they may begin to see Black as an ingroup, and therefore bolster implicit ingroup preference (Kowalski & Lo, 2001; Oyserman, Kemmelmeier, Fryberg, Brosh, & Hart-Johnson, 2003).

It is important to note that these findings are not consistent with early theorizing by Dunham et al. (2008) which suggested that “implicit intergroup preferences...are surprisingly stable across development” (p. 249), and instead support more recent suggestions that the claim of developmental invariance in implicit intergroup attitudes should be questioned (Baron, 2015). Baron (2015) has suggested that,

the stability of these associations across development may reflect the stability of prevailing cultural messages about the relative status of those groups and not the rigidity of the implicit associative system...the absence of developmental change does not rule

out the possibility of meaningful developmental differences in the capacity for implicit associations to be changed. (p. 52)

Consistent with this suggestion, recent research by Gonzalez, Steele, and Baron (2015) found that older White and Chinese children's implicit pro-White (versus Black) bias was attenuated following exposure to Black exemplars, whereas the biases of younger children was not. The findings of Study 1 provide some additional evidence for the possibility of developmental differences by demonstrating that in a community with a large Black population, the implicit pro-White (versus Black) racial biases of older children were attenuated relative to younger children.

## **Study 2**

The goal of Study 2 was to examine the racial attitudes of non-White majority and non-Black minority children in a different cultural context. In order to determine if children in different cultures acquire the same status and race preferences toward outgroups as North American children, in Study 2 I examined the racial attitudes of Malay and Chinese participants living in the large urban centre of Bandar Seri Begawan, in the small Southeast Asian country of Brunei Darussalam. This study differs from previous cross-cultural research, which examined the attitudes of Japanese children in a rural community with little exposure to outgroup members (Dunham et al., 2006) or examined the attitudes of children in South Africa, a country with a marked history of apartheid (Dunham, Newheiser, Hoosain, Merrill, & Olson, 2014; Newheiser et al., 2014). The population in Brunei consists of a large majority of people who are Malay, with the largest distinct minority group being Chinese (Government of Brunei, 2011). The country's demographics include few people who would racially self-identify as White or Black (with these groups included in the 23% of the country's population who classify their ethnicity as

“other”) (Government of Brunei, 2011). Both Malay and Chinese participants would be exposed to White and Black outgroups largely through Western media outlets and not through direct contact (Saxena, 2007).

In Study 2, Malay and Chinese participants completed a White-Black IAT similar to the one completed in Study 1 in order to assess their implicit racial attitudes. In addition, participants in this study were asked to complete two additional IATs comparing their implicit attitudes toward Chinese in comparison to Black as well as White outgroups. Finally, participants completed both an explicit measure of attitudes toward these three racial groups as well as an explicit measure examining children’s awareness of group-based status differences between racial groups.

Consistent with previous theory and research, as well as the findings of Study 1, it was expected that despite limited opportunities to interact with White and Black outgroup members, young children would show an implicit preference for higher (versus lower) status racial groups from an early age. Specifically, I hypothesized that young Malay and Chinese children in Brunei would show implicit pro-White relative to Black bias.

Second, I predicted that older children who had opportunities for direct contact with minority group members would show lower levels of implicit pro-White bias relative to younger children. Such differences across age groups are supported by Dunham and colleagues’ cross-cultural research (2006) that showed that young children in rural Japan are biased against outgroups but that bias toward high status outgroups declines with age. In the current sample, I predicted that similar results would be found even when participants were asked to compare two outgroups and ingroup positivity was therefore controlled. As direct contact with both White and Black outgroups is likely to remain low across development, I anticipated that children

would demonstrate a pro-White relative to Black bias in early childhood which would remain stable across age groups. I also expected Malay and Chinese participants would show a pro-Chinese relative to Black bias at an early age, as well as in older childhood and adulthood, provided they explicitly believed that Chinese had higher status than Blacks. Such a finding would provide additional evidence for my first hypothesis that children show implicit preferences favouring high status groups from an early age.

It was less clear what to expect in the White-Chinese comparison, as implicit bias could reflect either a preference for the globally high status group, the local minority, or both. However, similar to Study 1, I anticipated that young Malay children would show a pro-White bias that would be attenuated in middle childhood, provided that as a group they expressed a belief that Whites are higher status than Chinese. I also anticipated that Chinese children would show no bias at any age on this IAT, due to their positivity toward their ingroup and a high status outgroup.

Finally, in addition to expecting that children would explicitly express a preference for higher status group members, I also expected that they would identify racial groups higher and lower in social status by early childhood, and show an implicit bias favouring higher status outgroups. Although some researchers have examined the influence of status in the form of wealth on implicit group attitudes (Newheiser & Olson, 2012), and others have determined that children as young as five are able to infer relative status by watching same-race interactions (Over & Carpenter, 2014), little has been done to examine whether or not children are explicitly aware of status differences among groups in a cross-cultural context. If children indicate an awareness of group-based status differences between racial groups, this information will offer



further support that their implicit attitudes toward racial outgroups are informed by this knowledge.

### **Design**

The design of Study 2 was similar to Study 1, with three notable exceptions. First, in addition to child participants, we also recruited an adult sample to serve as an additional comparison. Second, we had participants from only two racial groups, the Malay majority and Chinese minority. Third, in addition to examining attitudes toward White and Black outgroup members, we also examined their attitudes toward the local Chinese minority in comparison to Black and to White outgroups. Participants therefore completed three separate ch-IATs in counterbalanced order (first, second, or third). As such, Study 2 had a 3 (Age of participant: younger child, older child, or adult) x 2 (Race of participant: Malay or Chinese) x 3 (IAT order: first, second, or third) between-subjects design, with implicit racial attitudes (*D*-score) as the primary dependent measure.

### **Method and Procedure**

#### **Participants**

Power analyses using G\*Power based on 6 between-subject groups,  $\alpha = .05$ , a moderate effect size  $f = .25$ , and 80% power, led to  $N = 210$  (Faul et al., 2007). A total of 251 children and adults participated in the current study, and post hoc power analyses indicated that this sample yielded a medium effect size  $f = .25$  at 87.5% power. The sample consisted of 205 Malay and Chinese children, who completed child-friendly versions of race IATs (Baron & Banaji, 2006; Greenwald et al., 2003). This sample included a total of 134 Malay (65 girls,  $M_{age} = 7$  years, 11 months  $SD = 16.58$  months) and 71 Chinese (34 girls,  $M_{age} = 8$  years, 3 months,  $SD = 15.52$  months) children who completed not only a White-Black ch-IAT, but also a Chinese-Black

and White-Chinese ch-IAT. Younger children ( $n = 93$ ) were recruited from grade 1 and included 67 Malay and 26 Chinese children (45 girls;  $M_{age} = 6$  years, 8 months,  $SD = .44$  months). Older children ( $n=112$ ) were recruited from grades 3 and 4 and included 67 Malay and 45 Chinese children (54 girls;  $M_{age} = 9$  years, 3 months,  $SD = .56$  months). All children were elementary school students in the urban capital city of Bandar Seri Begawan in the small Southeast Asian country of Brunei. Each participant was tested individually in a quiet location within their school. Participants completed the three implicit tasks in random order, followed by the explicit racial attitudes task and finally the status measure on a laptop computer during school hours after receiving permission from school board officials, principals, teachers, and parents, as well as verbal assent from each child. Testing was conducted by an English speaking Chinese experimenter who had been raised in Brunei.<sup>5</sup> All stimuli used are presented in Appendix B.

In addition to the child participants, Malay and Chinese undergraduate participants ( $n = 46$  including 38 Malay and 8 Chinese; 24 women;  $M_{age} = 20$  years, 8 months,  $SD = 1.10$  years) were approached on their urban university campus in Bandar Seri Begawan and asked to take part in a study piloting child-friendly measures. Consenting participants were given instructions on a laptop computer and worked independently at an isolated library cubicle. They completed the implicit measure followed by the explicit racial attitudes measure and were then debriefed.

## Measures

**Implicit racial attitudes.** The implicit racial attitudes measure was identical to the one described in Study 1 (ch-IAT; Baron & Banaji, 2006; Greenwald et al., 2003) except that the length matched what is typically administered to adults, with practice blocks consisting of 20

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<sup>5</sup> All children who had consented to participate in the study were allowed to complete the tasks. However, since the present research was only concerned with Malay and Chinese racial groups, participants who did not fully identify as either Malay or Chinese were excluded prior to conducting any analyses ( $n = 50$ ). In addition, 4 children were removed from the analyses due to difficulty understanding and completing the tasks.

trials and critical blocks consisting of 60 (20 practice and 40 test) trials. In addition, unlike the first study, participants in the present research completed three ch-IATs including a White-Black (W/B) ch-IAT, a Chinese-Black (C/B) ch-IAT, and a White-Chinese (W/C) ch-IAT administered in random order.

**Explicit racial attitudes.** This measure was adapted from Baron and Banaji (2006; see also Dunham et al., 2006; Williams & Steele, 2014) and was designed to be comparable to the implicit measure. Participants were presented with colour photographs of pairs of boys and were asked to select, by pressing one of two computer keys, which of the two boys they would rather play with. Participants were presented with a total of thirty trials, which included fifteen critical trials. In five of these critical trials, participants were presented with matched photographs of a White child and a Black child, in another five trials they were presented with matched photographs of a Chinese child and a Black child, and in a final five critical trials participants were presented with matched photographs of a White child and a Chinese child. In the fifteen filler trials, participants were presented with same-race pairs (5 White, 5 Black, and 5 Chinese). All trials were presented in random order.

**Status.** In order to determine whether children were explicitly aware of race-based differences in relative advantage and disadvantage, children were presented with a PowerPoint slide containing four quadrants. Each quadrant presented multiple photographs of people from one of four racial groups, including White, Black, Chinese, and Malay. Children were told that “...there are some groups that seem to be treated best in society, for example they may seem to have more things, and have really good jobs. Other groups may not be treated so well...” Participants were asked to think of the different groups as a whole, and rank order which groups they thought were treated the best in society. Participants were then asked to make three similar

assessments of how their teachers, parents, and most grown-ups would respond to this question. Adult participants did not complete this status measure.

## Results

### Status

As expected, children demonstrated an awareness of group-based status differences on the explicit status measure. Eighty percent of Malay children ( $\chi^2 (1, N = 124) = 44.16, p < .001$ ) and 74% of Chinese children ( $\chi^2 (1, N = 66) = 15.52, p < .001$ ) rated Whites as having more relative advantage than Blacks. Similarly, 77% of Malay children ( $\chi^2 (1, N = 118) = 34.71, p < .001$ ) and 68% of Chinese children ( $\chi^2 (1, N = 66) = 8.73, p = .003$ ) believed that adults (a composite of parents, teachers, and most grown-ups) would rate Whites as “being treated” better in society than Blacks. In addition, the majority of children (62% of Malay,  $\chi^2 (1, N = 124) = 7.26, p = .01$ , and 76% of Chinese,  $\chi^2 (1, N = 66) = 17.52, p < .001$ ) rated Chinese targets as receiving better treatment in society than Blacks, and these percentages were again comparable when they were asked to reflect on what adults believed (64% and 82% respectively;  $\chi^2 (1, N = 118) = 8.68, p < .003$  and  $\chi^2 (1, N = 66) = 26.73, p < .001$  respectively).

Interestingly, there was slightly less consensus when it came to the relative advantage of White and Chinese targets. Seventy-four percent of Malay children ( $\chi^2 (1, N = 124) = 29.03, p < .001$ ) felt that Whites had higher status than Chinese, and 59% of Malay children ( $\chi^2 (1, N = 118) = 4.10, p = .04$ ) felt that adults would similarly rank Whites higher than Chinese. A similar percentage (62%;  $\chi^2 (1, N = 66) = 3.88, p = .05$ ) of Chinese children ranked Whites as having more advantage than Chinese; however their subsequent rankings reflected a belief that adults would rank people who are Chinese as being relatively more advantaged than Whites, with only 32% ( $\chi^2 (1, N = 66) = 8.73, p = .003$ ) placing Whites higher.

## Implicit Racial Attitudes

Responses on the child-friendly IAT were again scored according to Greenwald et al. (2003), with higher scores indicating greater relative pro-White bias (for the W/B and W/C ch-IATs) and greater pro-Chinese bias (for the C/B ch-IAT). In order to determine whether bias depended on the race or age of the participant, as well as the order in which the IATs were completed, I conducted a 3 (Age of participant: younger child, older child, or adult) x 2 (Race of participant: Malay or Chinese) x 3 (IAT order: first, second, or third) between-subjects ANOVA<sup>6</sup> on the *D*-scores for each IAT.

**White-Black (W/B) ch-IAT.** The ANOVA on participants' implicit preference for White relative to Black faces revealed a main effect of Age of participant,  $F(2, 214) = 3.39, p = .04, \eta_p^2 = .03$ , and IAT order  $F(2, 214) = 6.53, p = .002, \eta_p^2 = .06$ . No other effects emerged,  $F_s < 1.00, p_s > .48$ . Post-hoc Tukey HSD tests revealed that this bias was larger for adults relative to both younger ( $p = .02, d = .47$ ) and older children ( $p = .01, d = .51$ ), who did not differ from each other ( $p = 1.00, d = -.004$ ). As expected, however, younger children ( $D = 0.14, SD = 0.33$ ),  $t(77) = 3.66, p < .001, d = 0.83, 95\% \text{ CI } [.06, .21]$ , older children ( $D = 0.14, SD = 0.28$ ),  $t(107) = 5.17, p < .001, d = 1.00, 95\% \text{ CI } [.09, .19]$ , and adults ( $D = 0.29, SD = 0.32$ ),  $t(45) = 6.17, p < .001, d = 1.84, 95\% \text{ CI } [.20, .39]$ , all demonstrated a significant pro-White bias on the ch-IAT, such that their *D*-scores were significantly higher than 0, see Figure 2. In addition, consistent with previous findings (Olson & Fazio, 2004; Wittenbrink, Judd, & Park, 2001), IAT order proved to be important; post hoc Tukey HSD tests revealed that bias was significantly greater among participants who completed the W/B ch-IAT first as compared to those who complete it

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<sup>6</sup>Each of these analyses was also conducted using gender as a factor. Similar to Study 1, no main effect for gender or interaction involving gender emerged for any of the analyses, and therefore it is not discussed further.

second ( $p = .001$ ,  $d = .59$ ) or third ( $p = .003$ ,  $d = .50$ ), with no difference emerging for those who completed this ch-IAT second or third ( $p = .91$ ,  $d = -.07$ ), see Table 1 for means by order.

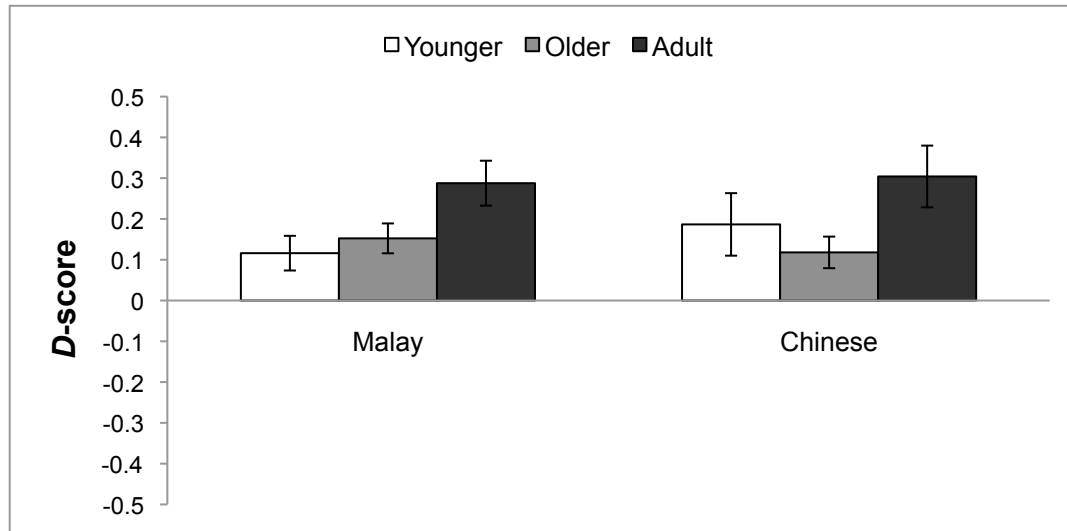


Figure 2. D-scores of younger, older, and adult Malay and Chinese participants on the White/Black IAT. Positive D-scores represent an implicit preference for White relative to Black. Error bars represent the standard error for each column.

Table 1

D-scores for participants who completed the White/Black IAT first, second or third. Positive scores represent a pro-White (relative to Black) bias. Significant results indicate D-scores that are significantly different from the no-bias midpoint of 0.

\* $p < .05$ . \*\* $p < .01$ .

IAT order	Younger		Older		Adult	
	n	M (SD)	n	M (SD)	N	M (SD)
First	25	.30** (.36)	41	.23** (.29)	15	.35** (.42)
Second	25	.04 (.29)	30	.09* (.24)	15	.20* (.27)
Third	28	.08 (.30)	37	.07 (.27)	16	.32** (.26)

I also conducted a  $t$ -test to determine whether children who stated that Whites have higher status than Blacks also showed greater pro-White bias. Unexpectedly, children who identified Whites as having higher status than Blacks actually showed significantly less implicit pro-White bias ( $D = 0.11$ ,  $SD = 0.29$ ) than those who rated Blacks as having higher status than Whites ( $D = 0.22$ ,  $SD = 0.32$ ),  $t(183) = -2.06$ ,  $p = .04$ ,  $d = -.30$ , 95% CI [-.21, -.004], however

both groups showed a significant pro-White bias,  $t(144) = 4.65, p < .001, d = .78, 95\% \text{ CI } [.06, .16]$ ,  $t(39) = 4.40, p < .001, d = 1.41, 95\% \text{ CI } [.12, .32]$ , respectively.

**Chinese-Black (C/B) ch-IAT.** Participants' implicit preference for Chinese relative to Black faces was examined using a 3 (Age of participant: younger child, older child, or adult) x 2 (Race of participant: Malay or Chinese) x 3 (IAT order: first, second, or third) ANOVA. No main effects or two-way interactions were found,  $F_s < 2.03, p_s > .13$ , see Figure 3. However, there was a significant three-way interaction,  $F(4, 206) = 4.02, p = .004, \eta_p^2 = .07$ . In order to further examine this interaction, follow up 3 (Age of participant: younger child, older child, or adult) x 3 (IAT order: first, second, or third) ANOVAs were conducted separately for Malay and Chinese participants. Results indicated only a main effect of IAT order for Malay participants,  $F(2, 142) = 5.75, p = .004, \eta_p^2 = .08$ , and post hoc Tukey HSD tests indicated that Malay participants who completed the C/B ch-IAT first demonstrated significantly greater pro-Chinese bias ( $D = .24, SD = .35$ ) compared with those who completed it second ( $D = .03, SD = .28$ ),  $p = .002, d = .66$ . No such difference was found between those who completed it first compared to third ( $D = .13, SD = .27$ ),  $p = .17, d = .35$ , or second compared to third,  $p = .28, d = -.36$ . No other main effect or interaction emerged,  $F_s < 1.04, p_s > .34$ . Results for Chinese participants revealed only an Age of participant by IAT order interaction,  $F(4, 64) = 3.68, p = .009, \eta_p^2 = .19$  (main effects:  $F_s < 1.11, p_s > .33$ ). Both younger and older children showed order effects, with younger Chinese children who completed the C/B ch-IAT first ( $D = -.21, SD = .38$ ) showing less pro-Chinese bias than those who completed it third ( $D = .17, SD = .24$ ),  $t(15) = -2.45, p = .03, d = -1.26, 95\% \text{ CI } [-.72, -.05]$ , and older children who completed the C/B ch-IAT second ( $D = .06, SD = .23$ ) showing less pro-Chinese bias than those who completed it first

( $D = .35$ ,  $SD = .37$ ),  $t(28) = 2.59$ ,  $p = .02$ ,  $d = .98$ , 95% CI [.06, .52], see Table 2. No other comparisons within each age or for adults were significant,  $ps > .06$ .<sup>7</sup>

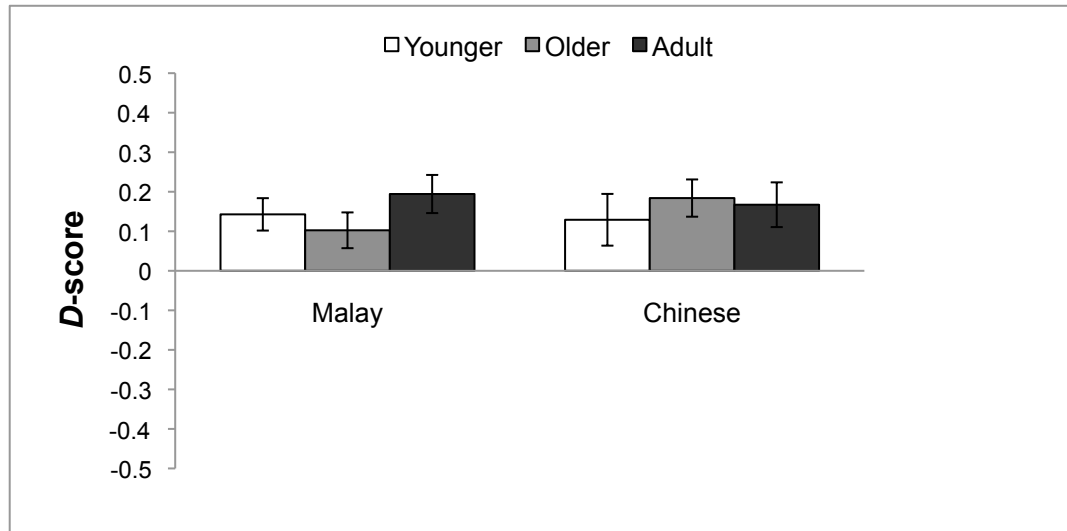


Figure 3. *D*-scores of older, younger and adult Malay and Chinese participants on the Chinese/Black IAT. Positive *D*-scores represent an implicit preference for Chinese relative to Black. Error bars represent the standard error for each column.

In addition, no significant difference was found between the *D*-scores of children who rated Chinese as higher status than Black ( $D = .15$ ,  $SD = .32$ ) and those who rated Black as higher status than Chinese ( $D = .11$ ,  $SD = .32$ ),  $t(176) = .80$ ,  $p = .43$ ,  $d = .12$ , 95% CI [-.06, .14].

Table 2

*D*-scores for participants who completed the Chinese/Black IAT first, second or third. Positive scores represent a pro-Chinese (relative to Black) bias. Significant results indicate *D*-scores that are significantly different from the no-bias midpoint of 0.

\* $p < .05$ . \*\* $p < .01$ .

IAT order	Younger		Older		Adult	
	n	M (SD)	n	M (SD)	n	M (SD)
First	26	.23** (.36)	39	.22** (.39)	15	.27** (.32)
Second	21	.03 (.28)	37	.04 (.27)	15	.15* (.25)
Third	29	.13** (.23)	26	.14* (.28)	16	.15* (.26)

<sup>7</sup> Caution should be taken in the interpretation of these results given the small *n* for Chinese participants in some of these conditions.



**White-Chinese (W/C) ch-IAT.** In order to further investigate my hypothesis that children with opportunities for contact with minority peers would show lower levels of implicit pro-White bias in older childhood, I analyzed participants' *D*-scores on the W/C ch-IAT. The 3 (Age of participant: younger child, older child, or adult) x 2 (Race of participant: Malay or Chinese) x 3 (IAT order: first, second, or third) ANOVA revealed no significant main effects or interactions,  $F_s < 1.98$ ,  $p_s > .14$ . Interestingly, none of the age groups, including younger children, demonstrated significant bias on the W/C ch-IAT (younger children:  $D = 0.01$ ,  $SD = 0.33$ ,  $t(77) = .39$ ,  $p = .70$ ,  $d = 0.09$ , 95% CI [-.06, .09]; older children:  $D = 0.02$ ,  $SD = 0.28$ ,  $t(110) = .83$ ,  $p = .41$ ,  $d = 0.16$ , 95% CI [-.03, .08]; adults:  $D = 0.02$ ,  $SD = 0.34$ ,  $t(45) = .49$ ,  $p = .63$ ,  $d = 0.15$ , 95% CI [-.08, .13]). As can be seen in Figure 4 this was true of both Malay and Chinese participants.<sup>8</sup> In addition, no significant difference was found between the *D*-scores of children who rated White as higher status than Chinese and those who rated Chinese as higher status than White,  $t(186) = -.62$ ,  $p = .54$ ,  $d = -.09$ , 95% CI [-.13, .07].

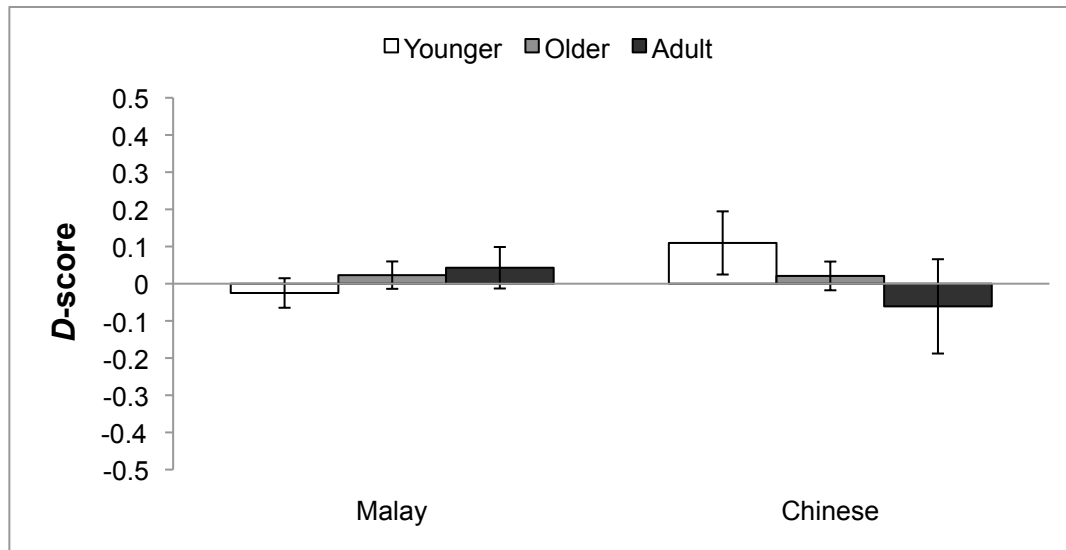


Figure 4. *D*-scores of older, younger and adult Malay and Chinese participants on the White/Chinese IAT. Positive *D*-scores represent an implicit preference for White relative to Chinese. Error bars represent the standard error for each column.

<sup>8</sup> As can be seen in Table 3, this was still the case when only the data of those who completed this IAT first were considered.

Table 3

*D-scores for participants who completed the White/Chinese IAT first, second or third. Positive scores represent a pro-White (relative to Chinese) bias, and negative scores represent a pro-Chinese (relative to White) bias. Significant results indicate D-scores that are significantly different from the no-bias midpoint of 0.*

*\* $p < .05$ .*

IAT order	Younger		Older		Adult	
	n	M (SD)	n	M (SD)	n	M (SD)
First	27	-.01 (.30)	25	-.07 (.30)	16	-.02 (.39)
Second	29	.02 (.32)	42	.08* (.26)	16	.06 (.28)
Third	24	.12* (.26)	44	.02 (.28)	14	.03 (.38)

Because Malay and Chinese children differed somewhat in their assessments of status differences between these groups, I re-ran these analyses for Malay and Chinese children separately. Again, no significant differences emerged in the *D*-scores of Malay children who rated White as higher status than Chinese, ( $D = .01$ ,  $SD = .28$ ) and those who rated Chinese as higher status than White, ( $D = -.02$ ,  $SD = .35$ ),  $t(119) = .47$ ,  $p = .64$ ,  $d = .09$ , 95% CI  $[-.09, .15]$ . The same was true for Chinese children who rated White as higher status, ( $D = .01$ ,  $SD = .32$ ), and those who rated Chinese as higher status, ( $D = .11$ ,  $SD = .32$ ),  $t(65) = -1.28$ ,  $p = .20$ ,  $d = -.32$ , 95% CI  $[-.26, .06]$ . Also, as Chinese children reported a belief that adults view Chinese as higher status, I conducted analyses to see if there was a difference in the *D*-scores of those who said that adults thought Chinese was higher status than White ( $D = .05$ ,  $SD = .28$ ), versus those that stated that adults considered Whites as higher status than Chinese ( $D = -.01$ ,  $SD = .33$ ). No significant difference was found,  $t(180) = 1.24$ ,  $p = .22$ ,  $d = .18$ , 95% CI  $[-.03, .15]$ . When separated by race, Malay children who believed that adults would say that White was higher status than Chinese ( $D = .02$ ,  $SD = .27$ ) were not significantly different from those who thought adults would say Chinese was higher status than White ( $D = -.03$ ,  $SD = .33$ ),  $t(113) = .74$ ,  $p = .46$ ,  $d = .14$ , 95% CI  $[-.07, .15]$ . Chinese children demonstrated similar results, with those who

thought adults would say White was higher status than Chinese ( $D = .13$ ,  $SD = .30$ ), and those who thought the reverse ( $D = .01$ ,  $SD = .33$ ), showing no significant differences,  $t(65) = 1.54$ ,  $p = .13$ ,  $d = .38$ , 95% CI  $[-.04, .29]$ .

### **Explicit Racial Attitudes**

In order to examine the impact of the race and age of participants on explicit attitudes, I conducted a 3 (Age of participant: younger child, older child, or adult) x 2 (Race of participant: Malay or Chinese) between-subjects ANOVA using the number of White (or Chinese in the case of the Chinese-Black pairings) peers selected in the relevant critical trials, as has been done in previous research (e.g., Baron & Banaji, 2006; Dunham et al., 2007).

**White-Black pairings.** When comparing participants' explicit choice of White versus Black playmates, only a main effect of Age of participant emerged,  $F(2, 228) = 5.28$ ,  $p = .01$ ,  $\eta_p^2 = .04$ . Post hoc Tukey HSD tests revealed that younger and older children were significantly more likely than adults to show a preference for the White face ( $p = .01$ ,  $d = .57$  and  $p < .001$ ,  $d = .89$ , respectively), while younger and older children did not differ significantly from each other ( $p = .15$ ,  $d = -.27$ ). As can be seen in Figure 5, consistent with their implicit responses, participants in Brunei expressed a preference for playing with White children over Black children on 71% of the W/B critical trials,  $t(191) = 11.42$ ,  $p < .001$ ,  $d = 1.65$ , 95% CI  $[.87, 1.23]$ . Although adults showed an implicit pro-White bias, as expected, this bias did not reliably emerge in their explicit responses with adults selecting White and Black targets equally,  $t(41) = 0.48$ ,  $p = .64$ ,  $d = .15$ , 95% CI  $[-.31, .50]$ .

**Chinese-Black pairings.** When explicit preferences for playing with a Chinese relative to a Black playmate were analyzed, only a main effect of Age of participant emerged,  $F(2, 228) = 4.04$ ,  $p = .02$ ,  $\eta_p^2 = .03$ . Both younger ( $M = 3.68$ ,  $SD = 1.24$ ),  $t(83) = 8.69$ ,  $p < .001$ ,  $d = 1.91$ ,

95% CI [.91, 1.45] and older ( $M = 3.71$ ,  $SD = 1.28$ ),  $t(107) = 9.83$ ,  $p < .001$ ,  $d = 1.90$ , 95% CI [.97, 1.46] children showed this preference, however as expected, adults did not, ( $M = 2.57$ ,  $SD = 1.21$ ),  $t(41) = 0.38$ ,  $p = .71$ ,  $d = .12$ , 95% CI [-.31, .45]. Post hoc Tukey HSD tests indicated that adults were significantly less likely to select the Chinese target over the White target relative to both younger children ( $p < .001$ ,  $d = -.90$ ) and older children ( $p < .001$ ,  $d = -.91$ ), while children did not differ significantly from each other ( $p = .98$ ,  $d = -.02$ ). As can be seen in Figure 5, both Malay (68% of trials) and Chinese (74% of trials) participants showed a preference for selecting Chinese over Black targets,  $t(159) = 8.45$ ,  $p < .001$ ,  $d = 1.34$ , 95% CI [.70, 1.13], and  $t(73) = 8.31$ ,  $p < .001$ ,  $d = 1.95$ , 95 % CI [.89, 1.46], respectively.

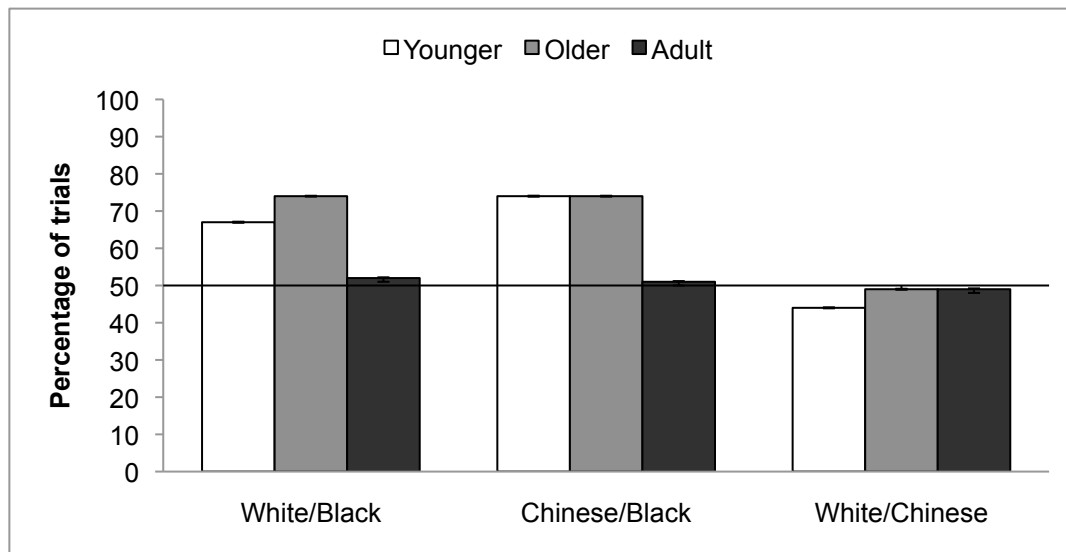


Figure 5. Percentage of trials in which participants indicated that they would rather play with the White relative to Black child (White/Black pairing), the Chinese relative to Black child (Chinese/Black pairing) and the White relative to Chinese child (White/Chinese pairing). Error bars represent the standard error for each column.

**White-Chinese pairings.** Consistent with the relative advantage and implicit measures, the ANOVA examining participants' explicit preference for playing with White relative to Chinese children revealed no significant effects,  $F_s < 1.75$ ,  $p_s > .17$ . Children (47% of trials),  $t(191) = -1.78$ ,  $p = .08$ ,  $d = -.26$ , 95% CI [-.35, .02], and adults (49% of trials),  $t(41) = -.21$ ,  $p =$

.84,  $d = -.07$ , 95% CI [-.51, .42] were equally likely to select a White as compared to a Chinese target in these critical pairings.

### Discussion

The results of this study provide additional insight into children's implicit social cognition. My first question centered on whether non-Black minority and non-White majority children in the small Southeast Asian country of Brunei would show a pro-White relative to Black bias on an implicit measure of attitudes. Consistent with the possibility that implicit preference favouring high status groups is acquired early in development, younger children, as well as older children and adults in this sample all demonstrated an implicit pro-White versus Black bias. This finding is particularly striking because children in this society have limited direct contact with the members of either of these racial groups. Dunham and colleagues (2008) argue that at an early age, children are sensitive to their ingroup status within their cultural environment, and the current findings extend their argument by demonstrating that such sensitivity exists even when considering outgroups beyond one's local context. It is worth noting that 78% of children expressed a belief that White was a higher status group relative to Black, yet implicit bias did not seem to depend on this ranking. In fact, surprisingly, those who rated White as higher status than Black actually showed *less* implicit pro-White bias than those who said Black was higher status than White.

My second hypothesis was that older children with opportunities for contact with members of the minority group would show attenuated bias favouring the high status outgroup (versus minority groups) relative to younger children. To examine this, it was first necessary to determine whether children possessed knowledge of status differences among racial groups. As expected, the majority of Malay and Chinese children believed that Blacks have lower status

than Whites or Chinese, and this knowledge emerged among the youngest participants – by 6 years of age – and among children who would have had limited direct contact with members of either White or Black racial groups. Importantly, the majority of Malay and Chinese children explicitly reported their belief that Whites had higher status than Chinese.

Chinese children showed greater implicit positivity toward their ingroup when the comparison group was the historically disadvantaged Black group. These results are consistent with findings in other cross-cultural studies showing that British (Rutland et al., 2005) and American (Baron & Banaji, 2006) Whites, American Hispanics (Dunham et al., 2007), Japanese nationals (Dunham et al., 2006), as well as Coloured children from South Africa (Dunham et al., 2014) favour their ingroup relative to Black targets. Malay children in the current study also showed positivity toward both a local minority (Chinese) and a global high status (White) group in comparison to Blacks.

However, when White and Chinese targets were compared, the current findings differ somewhat from Dunham et al.'s Japanese sample (2006), which found that Japanese participants showed a pro-ingroup bias relative to the White outgroup that appeared to decline into adulthood. Chinese participants, who were in the minority in this cultural context, did not show a significant bias on the W/C IAT from age 6. Chinese participants' lack of implicit preference for White relative to Chinese is perhaps not surprising given what is known about minority groups in North America. As noted earlier, Black (Newheiser & Olson, 2012) and Hispanic (Dunham et al., 2007) children show no implicit bias when comparing their minority ingroup to the high status White outgroup, arguably due to competing preferences and positivity for both groups.

What is more surprising, however, is Malay participants' lack of implicit preference for the high status White outgroup when compared to the local Chinese minority. Malay children expressed a belief that White is a higher status group than Chinese, yet the absence of a pro-White bias may speak to positivity formed toward global high status groups as well as local minority peers. Although I expected an age related difference for Malay children for the W/C ch-IAT, no significant bias was found, and no differences were found between the biases of younger children, older children, and adults. One possible explanation for this finding has to do with the importance of cultural context and intergroup contact in shaping biases. That is, it is possible that Malay children had formed positive associations with the Chinese minority from a very young age, and increased contact with this outgroup does not improve participants' already positive impression of Chinese individuals. This positivity toward the local minority, coupled with a lack of contact with the high status White outgroup within their immediate environment may have led to a lack of pronounced preference for members of either racial group.

Interestingly, an age difference in bias was found on the W/B ch-IAT, such that bias was actually higher in the adult sample as compared to younger and older children. This suggests that although bias emerged early, it seems to have increased with age. This increase potentially points to participants' increased understanding of the social hierarchy and knowledge when it comes to global (as opposed to local) racial groups, a possibility that is returned to in the general discussion. However, caution is needed when interpreting this finding, as the means appear to be more similar across age groups for those who completed the W/B ch-IAT first. In order to establish further support for the argument that implicit attitudes vary across age groups in cross-cultural samples, more research must be done to eliminate the possibility that children who completed these IATs second and third were simply showing less bias due to fatigue.

Finally, consistent with my third hypothesis, children's explicit biases mirrored their expressed knowledge of status, such that Malay and Chinese children expressed both a preference for White versus Black, as well as knowledge that Whites have more relative advantage than Blacks. In addition, children indicated a preference for Chinese relative to Black, as well as knowledge that Chinese individuals were treated better than Blacks in society. One exception, however, was children's explicit bias of White compared to Chinese. The majority of children identified White as a higher status group than Chinese, however neither Malay nor Chinese participants indicated an explicit preference for White target children. Previous research suggests that contact in the form of cross-group friendship improves explicit outgroup attitudes (Turner et al., 2007), and the current findings are consistent with this possibility such that contact with the minority Chinese group may lead to more positive explicit attitudes toward that group as a whole.

### **General Discussion**

A primary goal of the present research was to increase our understanding of the development of implicit racial attitudes in childhood by examining the implicit biases of understudied minority and non-White majority children toward *outgroups* that differed in proximity and status. Based on previous theory and research, I first predicted that children in Toronto (Study 1) and Brunei (Study 2) would demonstrate a significant preference for White relative to Black outgroups. The current studies provide further evidence that an implicit preference favouring higher versus lower status racial groups emerges rapidly in childhood (Dunham et al., 2008), and this is true even when attitudes toward two outgroups are considered. In Study 1 I found that non-Black minority children within a community with a large Black population showed an implicit pro-White (versus Black) bias on a child-friendly IAT, suggesting



that even young children have incorporated status information into their implicit attitudes toward racial outgroups. This bias was not only found in the North American non-Black minority sample, but also with Malay and Chinese participants from the Southeast Asian country of Brunei, suggesting that these biases emerged even in children with little direct contact with the members of these outgroups. These results replicate and extend previous research showing children's implicit preferences for high status racial groups (Dunham et al., 2006; Dunham et al., 2014; Newheiser & Olson, 2012; Olson, Shutts, Kinzler, & Weisman, 2012). By focusing on the attitudes of both minority and non-White majority group members toward racial outgroups, I was able to extend these previous findings by disentangling the relationship between a preference for high status groups and ingroup bias. Eliminating the ingroup from the implicit comparison measure also allows us to conclude that an individual's ingroup bias is not necessarily the driving force behind these implicit biases, despite its importance in a child's social-cognitive development. It appears that children are capable of forming implicit attitudes toward outgroup members independent of their own group membership.

I also tested the implicit attitudes of Malay and Chinese participants in Brunei toward Chinese relative to Black targets. The finding that Malay participants demonstrated an automatic preference for Chinese (versus Black) further supports the idea that status and contact play a role in informing implicit attitudes toward outgroups. That is, Malay participants automatically associated greater positivity with members of the local minority relative to the globally lower status Black outgroup. Similar to findings with other minority groups (Dunham et al., 2007), Chinese participants showed an implicit preference for their ingroup relative to a lower status outgroup.

There was one important exception to the emergence of implicit biases favouring high status groups in early childhood. In Study 2, children did *not* display any implicit racial bias when attitudes toward White and Chinese targets were assessed. The finding for Chinese minority children in Brunei is perhaps not surprising, as it is consistent with the lack of bias found among other minority children when the comparison group is White (Dunham et al., 2007). What is more surprising, however, is that the Malay children also failed to show an implicit preference for either White or Chinese. As noted earlier, this may be due to the fact that participants develop positive associations with Chinese from a young age, and despite acknowledging that White is a higher status group relative to Chinese, positive feelings toward their local minority group compete with their positive implicit associations with White, resulting in no bias. Malay children may even see Chinese as being a part of a *cultural* ingroup relative to White, and given the Malay children's lack of proximity to the White outgroup, opportunities to develop positive associations with this globally high status group might be far less frequent than the opportunities faced by children in predominantly White cultural contexts. Unlike the findings of Dunham et al. (2006), which suggest that "early race bias does not appear to be highly dependent on contact or exposure to outgroup members" (p. 1276), the current study points to the possibility that contact with outgroups is an important moderator of implicit bias when the ingroup is removed.

### **The Potential Role of Context and Intergroup Contact on Implicit Biases**

My second hypothesis was that older children with minority outgroup members in their community would show lower levels of bias relative to younger participants. This hypothesis was supported in Study 1, with non-Black minority children showing attenuated pro-White bias in older, relative to younger, childhood. Early theorizing suggests that implicit attitudes develop

quickly and that the magnitude of bias remains stable into adulthood (Dunham et al., 2008). However, the findings from Study 1 are consistent with more recent theorizing by Baron (2015) suggesting that the typical developmental invariance could be due to a variety of factors such as the stability of social norms and the varying sources of race associations that an individual is attuned to across the lifespan. One important way that race associations can vary across development is through contact opportunities. This is supported by the findings of Study 1, where older non-Black minority children who have had greater opportunity for contact with Blacks in their community showed less pro-White bias relative to younger children.

Further evidence of the variability in implicit attitudes across age groups comes from the Study 2 data. Although the age related difference was only found when the two global outgroups (White and Black) were compared, it is important to note. The data suggest that when contact with these outgroups is limited, biases toward them are stronger in adulthood. A potential reason for this finding, though speculative, may be that adults have been exposed to more stereotypical representations of these outgroups through outlets such as Western media, therefore providing more opportunities to cement the perceived status differences between these two outgroups. However, as noted earlier, some caution must be used in this interpretation, as this same age-related difference did not emerge when only participants who completed this IAT first were compared.

In his now classic book *The Nature of Prejudice*, Allport (1954) outlined conditions necessary to promote positive intergroup attitudes. He states that it is possible to reduce intergroup prejudice if members of different yet equal status groups work co-operatively toward a common goal in an environment that promotes intergroup contact by way of laws and customs. Although implicit attitudes were not a focus of this seminal literature, the conditions may still

apply. Consistent with this possibility, more recent research has demonstrated that contact with outgroup members is related to implicit racial biases (Page-Gould et al., 2008; Turner et al., 2007). Although the present research did not measure intergroup contact or interracial friendships as an individual difference variable, the results hint at the possibility that the attenuated pro-White bias for older non-Black minority children in Study 1, as well as the lack of pro-White (versus Chinese) bias among Malay children in Study 2 may be due to the exposure that children had to members of these outgroups. Although based on our current study design it is not possible to conclude whether contact was the main contributor to the attenuated (Study 1) or lack of (Study 2) bias, it would be useful to incorporate measures of contact into future research, as well as to conduct longitudinal studies, to better understand how individual differences in cross-race contact impacts the early development of implicit racial biases.

Further investigation into the context in which children show more or less pro-White bias may also help to explain the finding from Study 1 that Black children show no implicit racial preference. Although the current results are consistent with previous research showing that minority children do not show bias when comparing their ingroup to a high status outgroup, it is perhaps surprising that participants did not show a significant pro-Black bias given the positive exemplars available to children in Study 1. In research by Newheiser and colleagues (2014), Black children showed an implicit preference for White relative to Black in South Africa, a cultural environment with a distinct status hierarchy. If preferences for high status groups can offset implicit ingroup positivity in some environments, it should follow that environments that actively promote positive associations with Blacks might similarly lead Black children to form pro-Black implicit attitudes. However, given the area in which participants were recruited, it is also quite possible that the socioeconomic status (SES) of the sample was low and, despite the

positivity surrounding Blacks in the school and community, awareness of this low SES may have contributed to this finding. Support for this possibility can be found in Newheiser and Olson's (2012) research, in which an implicit preference for wealth was related to Black children's implicit racial bias. In order to better understand the role of context in shaping implicit attitudes among less advantaged racial groups, further research should include measures of SES and explicit wealth preferences in order to control for its potential influence.

### **Status Awareness and Explicit Preferences**

The final goal of this research was to examine the beliefs about group-based status differences held by children in Brunei, and how this is reflected in their racial preferences, particularly toward groups with which they had little to no contact. Child participants in Brunei indicated that Whites were treated better relative to Chinese and Blacks, and that Chinese were treated better than Blacks. This status knowledge was mirrored in participants' explicit preference for both White and Chinese relative to Black playmates, as individuals were more likely to select White or Chinese playmates when the alternative was a Black peer. However, similar to the findings on the implicit measure, there was no preference for White relative to Chinese playmates and this was despite the fact that the majority of children explicitly indicated that White is the higher status group. It is likely that access to Chinese peers influenced these selections. Children may be aware that, on a global scale, White is a high status group, but on a more local level, they have positivity toward members of the more familiar Chinese outgroup. This idea is supported by Pettigrew and Tropp (2006), who argue that contact has the ability to increase familiarity, which in turn reduces prejudice. Baron and Banaji (2006) have also suggested that, for young children in particular, "it is quite possible that attitudes, both implicit and explicit, may indeed rely more on familiarity than on preference and future tests of this

possibility will be important” (p. 57). Due to the relative dearth in the current literature on explicit status knowledge, considering such knowledge may be one way to increase our understanding of the importance of familiarity in shaping implicit attitudes.

### **Why Does Group Status Impact Automatic Biases?**

Having provided some evidence that children implicitly prefer high status outgroups from the age of 6, one important question to consider is where these associations come from? Several possibilities exist. First, children might be provided with more opportunities to develop positive associations with advantaged group members – as well as more opportunities to form and strengthen negative associations, even (and possibly *particularly*) in the absence of direct contact with members of racial outgroups. For example, advantaged group members, such as Whites in North America, are likely to appear more frequently – and in more positive ways – in the media and in the real world (Tukachinsky, Mastro, & Yarchi, 2015). Other examples of how such implicit preferences form include the positive and negative associations attributed to particular racial groups through both subtle and overt forms of prejudice that persist in society (Pearson et al., 2009). For instance, behaviors that can be interpreted as manifestations of discomfort, such as aversive eye gaze (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Pearson et al., 2009), may cause minority group members to sense distrust from majority group members. Research has also shown that negative associations with racial outgroups can even be made through indirect exposure to the target group. Weisbuch, Pauker and Ambady (2009) have demonstrated that negative nonverbal behaviour toward outgroup members as seen on television influenced the implicit racial attitudes of adults. In addition, Castelli, De Dea, and Nesdale (2008) found that preschool-aged children who watched a video interaction between a White and a Black adult involving negative nonverbal cues subsequently formed attitudes toward the Black

individual in accordance with the actions, and not words, of the White adult. Other possible sources of implicit status bias may come from a predisposition to attend to status information (see DeWall & Maner, 2008; Vorauer, 2006) as well as system justification, defined as justifying the current social structure despite the fact that doing so may be detrimental to an individual or group (see Jost, Banaji, & Nosek, 2004). These examples provide only speculative support for the possible link between status and implicit racial attitudes. In order to draw firmer conclusions, and to develop more robust theories of implicit attitude development, more experimental research is needed.

### **Limitations and Future Directions**

The results from the present research highlight the need to refine our theoretical understanding of implicit racial attitudes in children. Although there is substantial evidence that children show implicit preferences favouring ingroups and high status groups from an early age, and that the magnitude of these preferences remains stable across development, the current findings suggest that there may be important moderators to consider, including intergroup contact. In Study 1, older non-Black minority children with Black peers showed attenuated pro-White bias relative to younger children, and in Study 2, exposure to Chinese children and adults in the community may help to explain the lack of pro-White (versus Chinese) bias shown by Malay children in Brunei. A limitation to the current research, however, is that it cannot be concluded that contact was the key moderating variable. Moving forward, a theory of implicit attitudes should strive to outline and test potential moderating variables, as well as the convergence and divergence of both implicit and explicit racial bias development. Experiments using a variety of implicit and explicit measures, as well as diverse participants and racial targets, would all help to enhance our knowledge of biases in children.

Further, there exists a need to develop a better understanding of the developmental course of implicit racial attitudes in the absence of the ingroup confound. As societies around the world become more diverse, attitudes and behaviours may not simply reflect comparisons between the ingroup and an outgroup, but rather one outgroup relative to another. It is therefore important to understand how we develop attitudes toward a variety of groups simultaneously. The current research took one approach here, but new measures are providing other opportunities that could be explored in the future. For example, results from studies with children that have made use of prototype-based measures such as affective priming tasks (APT; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Fazio, Jackson, Dunton, & Williams, 1995; Degner & Wentura, 2010), and affective misattributions paradigms (AMP; Payne, Cheng, Govorun, & Stewart, 2005) have provided novel insights into the conditions under which implicit racial biases are activated in childhood, and further research will help to clarify what is known more generally about children's implicit attitudes. In addition, longitudinal studies that examine cross-race contact and friendships will allow us to make stronger claims about the trajectory of bias from childhood into adulthood, and whether contact is an important moderator only at specific stages of cognitive development.

Finally, further studies will be needed to determine whether children's implicit attitudes can be used to predict intergroup behaviour, as they have for adults (Cameron, Brown-Iannuzzi, & Payne, 2012; Greenwald & Banaji, 1995), and the extent to which such attitudes and behaviours are malleable (Gonzalez et al., 2015; Kawakami, Phills, Steele, & Dovidio, 2007). The current findings suggest that there is some degree of flexibility in implicit racial attitudes, even in childhood, and that the magnitude of these biases appear to be impacted by the social context. Continued research that extends these findings by examining the antecedents of biases



as well as the consequences of implicit attitudes for intergroup behaviours could provide important practical insights.

Research aimed at examining the attitudes of diverse populations in a variety of cultural contexts will continue to provide valuable opportunities to further understand key moderators of attitude development. Although the present research provides additional support for some aspects of current theorizing surrounding early attitude emergence, other findings, such as the differences across age groups and cultural groups, call into question some initial theoretical assumptions. Continued research will be needed in order to more fully develop a robust understanding of the development of implicit racial attitudes.

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## Appendices

## Appendix A: Images Presented in Study 1

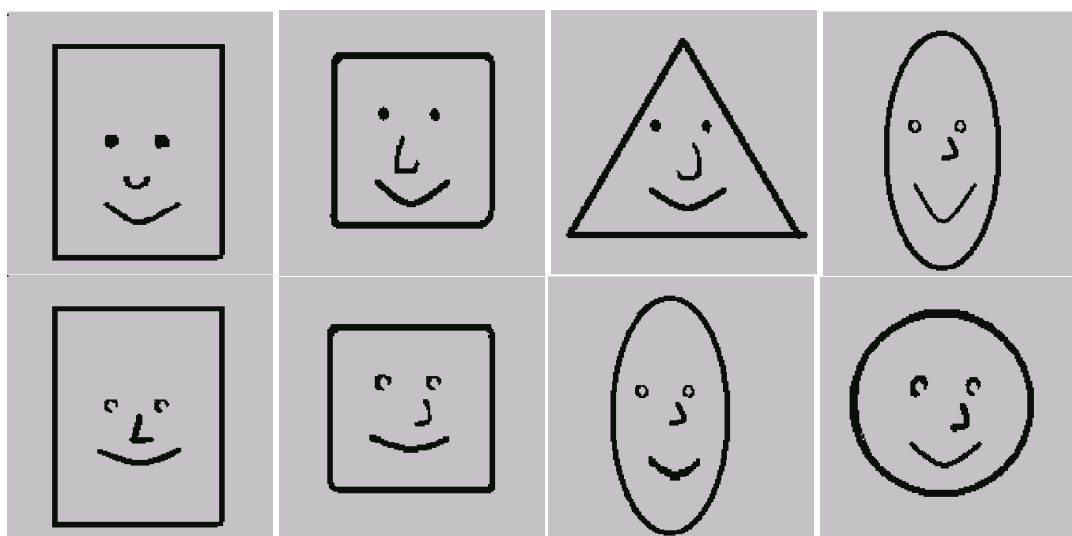
## Stimuli Presented in the White-Black Child-Friendly Implicit Association Test (ch-IAT)

Target Concepts.

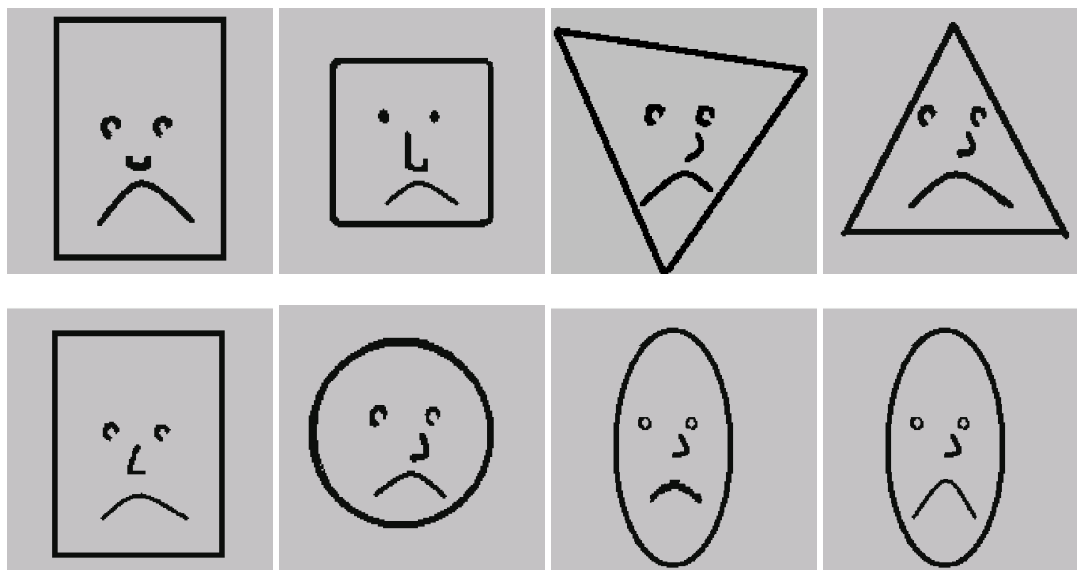


Attribute Concepts.

Pleasant Pictures



## Unpleasant Pictures



## Header



## Appendix B: Images Presented in Study 2

## Stimuli Presented in the Child-Friendly Implicit Association Test (ch-IAT)

Target Concepts.

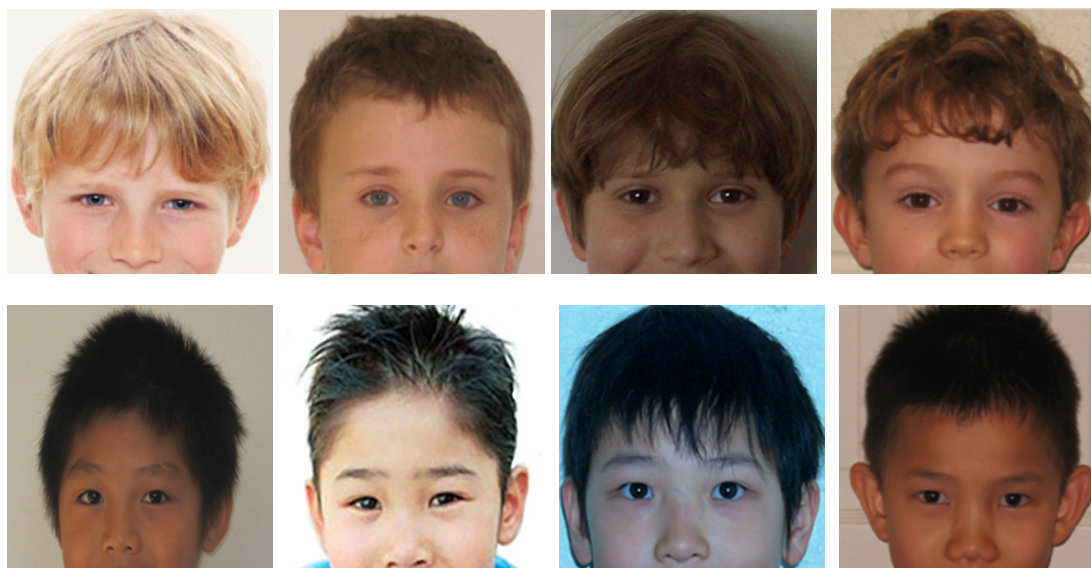
Target faces used in the White-Black ch-IAT



Target faces used in the Chinese-Black ch-IAT

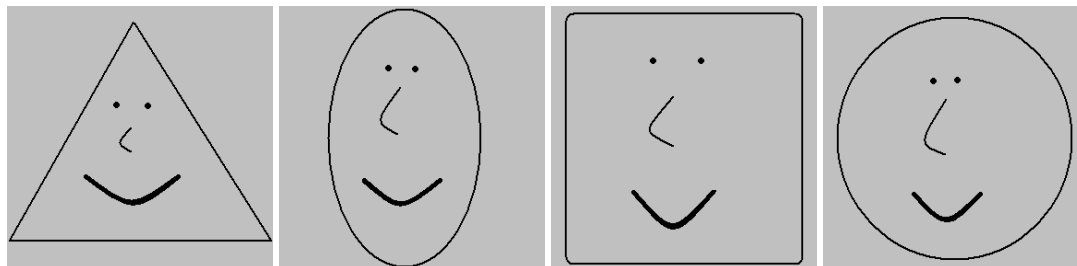


Target faces used in the White-Chinese ch-IAT

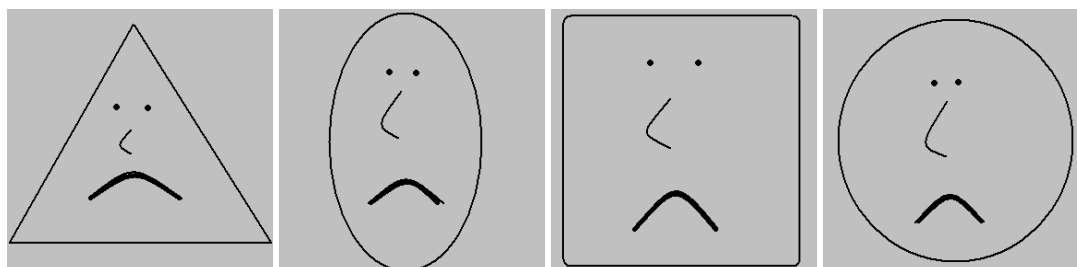


Attribute Concepts.

Pleasant Pictures



Unpleasant Pictures

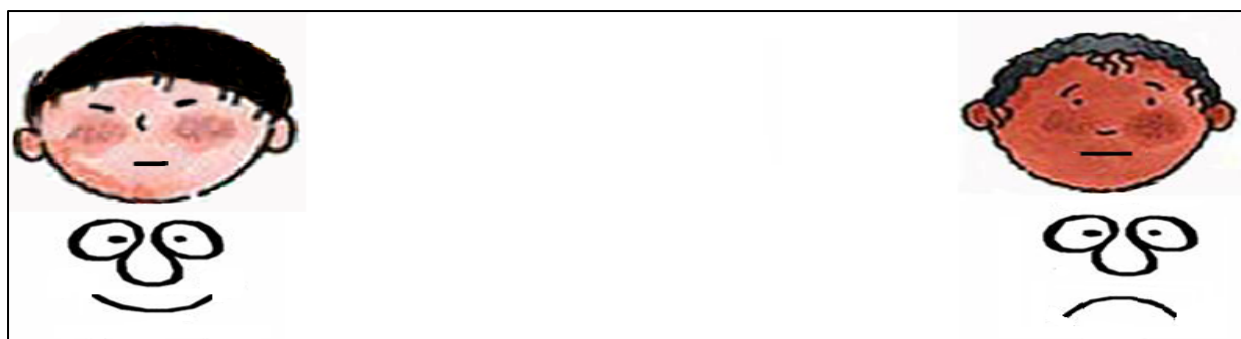


Headers

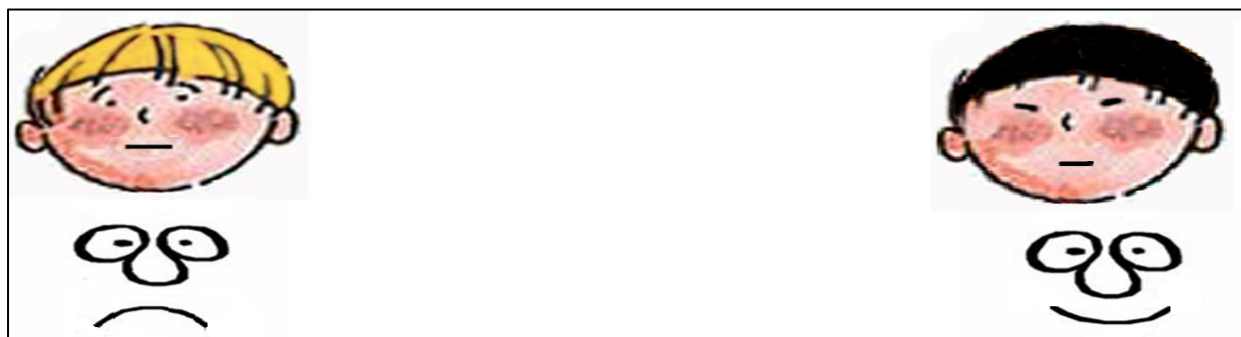
White-Black ch-IAT



Chinese-Black ch-IAT



White-Chinese ch-IAT



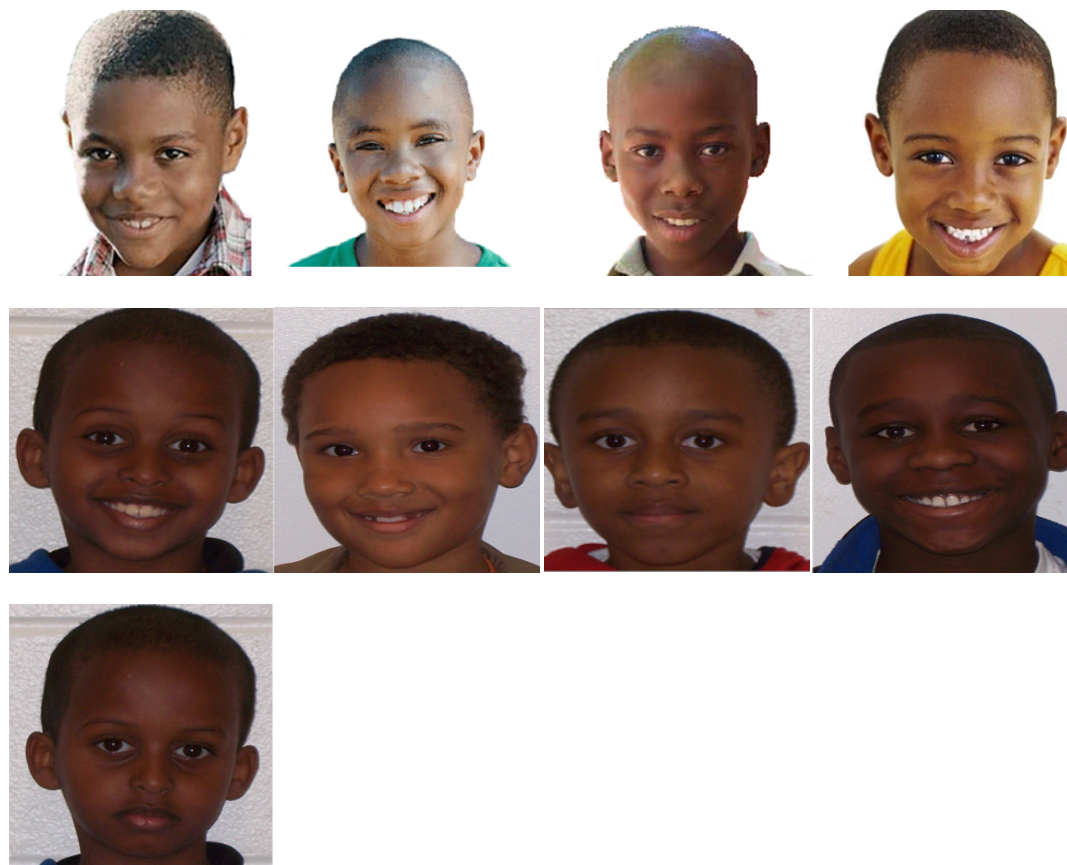


## Stimuli Presented in the Critical Forced Choice Trials

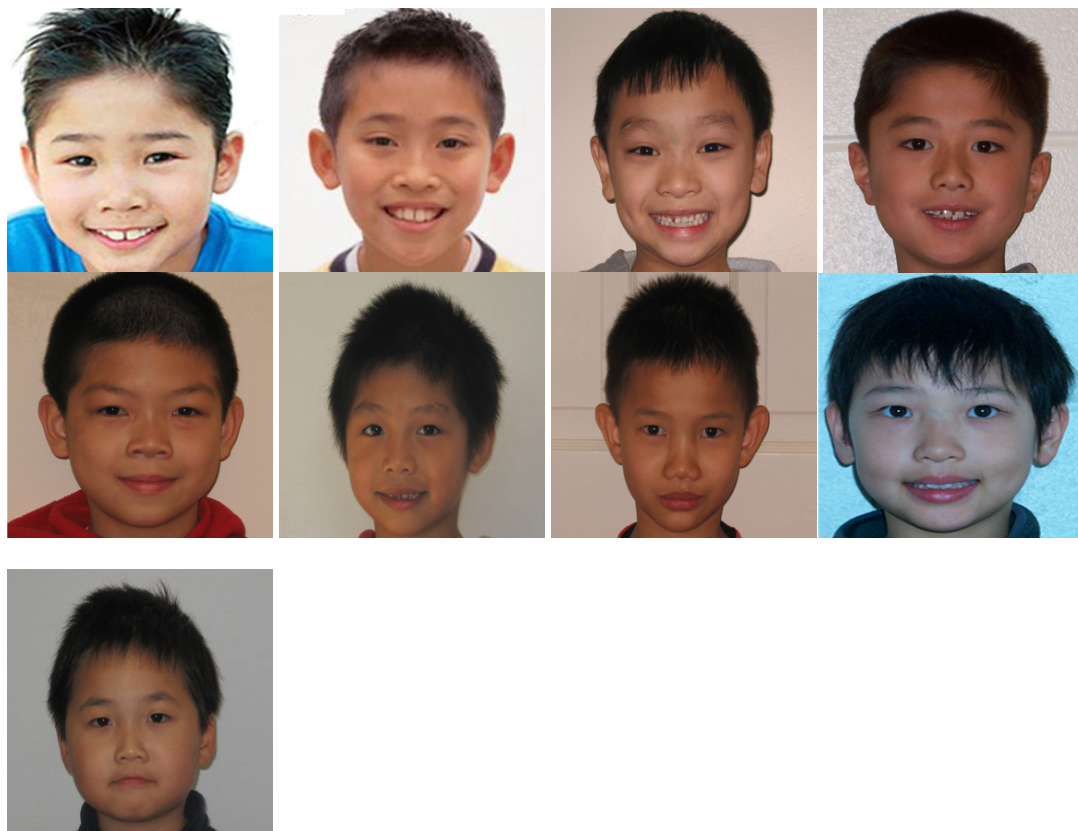
## White faces



## Black faces



Chinese faces



## Stimuli Presented in the Status Measure

